

In The Claims:

Claim 1. (Twice Amended) A skin for an automotive interior panel, the interior panel including an air bag deployment portion; the skin comprising:

a main body skin portion adapted to cover at least a portion of the automotive interior panel surrounding the air bag deployment portion of the panel, the main body skin portion comprising a first plastic material [and] including an opening corresponding to said air bag deployment portion, said opening comprising an inner edge;

an air bag cover skin portion comprising an outer edge connected at said main body skin portion inner edge and adapted to cover the air bag deployment portion of the automotive interior panel, the air bag cover skin portion comprising a second plastic material having the property of remaining substantially more ductile with decreasing temperature than the first plastic material;

a bond attaching the main body skin portion at said inner edge to the air bag cover skin portion at said outer edge; and

an air bag deployment region disposed within the air bag cover skin portion and adapted to open with the air bag deployment door in response to the force of an inflating air bag.

Claim 36. (Twice Amended) A method of forming a skin for an automotive interior panel, wherein the skin comprises a main body skin portion for covering most of an outer surface of the panel and an air bag cover skin portion comprising an outer edge, wherein said main body skin portion includes an opening corresponding to said air bag cover skin portion, said [having an] opening comprising an inner edge, wherein said [and an] air bag cover skin portion is bordered at the outer edge by the main body skin portion inner edge for covering an air bag deployment portion of the air bag cover panel, the method comprising

the steps of:

forming the main body skin portion by casting a first plastic material against a first surface area of a heated shell tool to form a first plastic skin casting to the desired shape of the main body skin portion, and

forming the air bag cover skin portion by casting a second plastic material against a second surface area of the heated shell tool [bounded by the first surface area] corresponding to said opening in said main body skin portion to form a second plastic skin casting to the desired shape of the air bag cover skin portion, and

forming a bond at said inner edge of the main body skin portion and said outer edge of said air bag cover portion and attaching the main body skin portion and the air bag cover skin portion together while on the heated shell tool.

Claim 52. (Thrice Amended) A skin for an automotive panel comprising:

a main body skin portion adapted to cover at least a portion of the automotive panel and [surrounding] including an opening corresponding to an air bag skin portion of the panel, said main body skin portion further comprising a first plastic material, said opening comprising an inner edge; and

an air bag cover skin portion comprising an outer edge connected at said inner edge of said main body skin portion, said air bag cover skin portion comprising a second plastic material having a glass transition temperature lower than a glass transition temperature of the first plastic material.

Claim 53. A skin for an automotive panel as defined in claim 52 wherein the main body skin portion and the air bag cover skin portion are connected by a bond.

Claim 54. A skin for an automotive panel as defined in claim 53 wherein the bond includes a material selected from the group including urethane and vinyl.

Claim 55. A skin for an automotive panel as defined in claim 53 wherein at least a portion of the bond is a tear seam.

Claim 56. A skin for an automotive panel as defined in claim 54 wherein the bond includes thermoset urethane.

Claim 57. A skin for an automotive panel as defined in claim 54 wherein the bond includes a thermoplastic urethane.

Claim 58. A skin for and automotive panel as defined in claim 54 wherein the bond includes polyvinyl chloride.

Claim 59. A skin for an automotive panel as defined in claim 53 wherein the bond includes a material selected from the group including olefins, esters, styrenes, and rubbers.

Claim 60. A skin for an automotive panel as defined in claim 53 wherein the bond is a composition including at least one of the first plastic material and the second plastic material.

Claim 61. A skin for an automotive panel as defined in claim 53 wherein the bond includes a composition of the first plastic material and the second plastic material.

Claim 62. A skin for an automotive panel as defined in claim 53 wherein the bond includes a thermoset plastic.

Claim 63. A skin for an automotive panel as defined in claim 53 wherein the bond includes a thermoplastic plastic.

Claim 64. A skin for an automotive panel as defined in claim 53 wherein the bond includes an overlap of the first plastic material and the second plastic material.

Claim 65. A skin for an automotive panel as defined in claim 52 wherein the air bag deployment region of the air bag skin portion includes a tear seam.

Claim 66. A skin as defined in claim 52 wherein the air bag deployment region of the air bag cover skin portion includes a tear seam strip.

Claim 67. A skin for an automotive panel as defined in claim 66 wherein the tear seam strip includes a material having a lower tensile strength or a lower tear strength than the second plastic material.

Claim 68. A skin for an automotive panel as defined in claim 66 wherein the tear seam strip includes a material selected from the group including urethane and vinyl.

Claim 69. A skin for an automotive panel as defined in claim 68 wherein the tear seam strip includes a thermoset urethane.

Claim 70. A skin for an automotive panel as defined in claim 68 wherein the tear seam strip includes a thermoplastic urethane.

Claim 71. A skin for an automotive panel as defined in claim 68 wherein the tear

seam strip includes polyvinyl chloride.

Claim 72. A skin for an automotive panel as defined in claim 66 wherein the tear seam strip includes a material selected from the group including olefins, esters, styrenes, and rubbers.

Claim 73. A skin for an automotive panel as defined in claim 66 wherein the tear seam strip includes thermoplastic material containing a filler.

Claim 74. A skin for an automotive panel as defined in claim 66 wherein the tear seam strip includes a thermoset material containing a filler.

Claim 75. A skin for an automotive panel as defined in claim 52 wherein the first plastic material includes a material selected from the group including urethane and vinyl.

Claim 76. A skin for an automotive panel as defined in claim 52 wherein the first plastic material includes a thermoset urethane.

Claim 77. A skin for an automotive panel as defined in claim 52 wherein the first plastic material includes a thermoplastic urethane.

Claim 78. A skin for an automotive panel as defined in claim 52 wherein the first plastic material includes polyvinyl chloride

Claim 79. A skin for an automotive panel as defined in claim 52 wherein the first plastic material includes a material selected from the group including olefin, ester, styrenes,

and rubbers.

Claim 80. A skin for an automotive panel as defined in claim 52 wherein the second plastic material includes a material selected from the group including urethane and vinyl.

Claim 81. A skin for an automotive panel as defined in claim 80 wherein the second plastic material includes a thermoset urethane.

Claim 82. A skin for an automotive panel as defined in claim 80 wherein the second plastic material includes a thermoplastic urethane.

Claim 83. A skin for an automotive panel as defined in claim 80 wherein the second plastic material includes polyvinyl chloride.

Claim 84. A skin for an automotive panel as defined in claim 52 wherein the second plastic material includes a material selected from the group including olefins, esters, styrenes, and rubbers.

Claim 85. A skin for an automotive panel as defined in claim 52 wherein the second plastic material includes a material more ductile than the first plastic material.

Claim 86. A skin for an automotive panel as defined in claim 52 wherein the second plastic material includes a urethane thermoset compound.

Claim 87. A skin for an automotive panel as defined in claim 66 wherein a coat of paint covers an outer surface of both the skin portions and the tear seam strip.

Claim 88. (Thrice Amended) A method of forming a skin for an automotive panel, the method comprising the steps of:

forming a main body skin portion adapted to cover at least a portion of the automotive panel [and surrounding] including an opening corresponding to an air bag skin portion of the panel, said main body skin portion further comprising a first plastic material, [and an] said opening comprising an inner edge;

forming an air bag cover skin portion [at said] comprising an outer edge, said air bag cover skin portion comprising a second plastic material having a glass transition temperature lower than a glass transition temperature of said first plastic material; and

connecting said main body skin portion inner edge and said air bag cover skin portion outer edge together.

Claim 89. A method as defined in claim 88 wherein:

the step of forming the main body skin portion comprising a first plastic material further comprises applying the first plastic material against a first surface area of a tool;

and the step of forming the air bag cover skin portion comprising a second plastic material further comprises applying the second plastic material against a second surface area of the tool.

Claim 90. A method as defined in claim 89 wherein:

the step of applying the first plastic material against a first surface area of a tool further comprises applying the first plastic material by casting; and

the step of applying the second plastic material against a second surface area of the tool further comprises applying the second plastic material by casting.

Claim 91. A method as defined in claim 89 wherein the step of applying the second

plastic material against a second surface area of the tool further comprises applying the second plastic material by spraying.

Claim 92. A method as defined in claim 88 wherein the steps of forming the main body skin portion and forming the air bag cover skin portion are performed simultaneously.

Claim 93. A method as defined in claim 88 wherein the steps of forming the main body skin portion and forming the air bag cover skin portion are performed sequentially.

Claim 94. A method as defined in claim 88 wherein the step of connecting the main body skin portion and the air bag cover skin portion together comprises forming an overlap between the main body skin portion and the air bag cover skin portion.

Claim 95. A method as defined in claim 88 wherein the step of connecting the main body skin portion and the air bag cover skin portion together further comprises forming a bond which connects the main body skin portion and the air bag cover skin portion together.

Claim 96. A method as defined in claim 95 wherein the step of forming the bond includes the step of spraying a plastic bonding material at least between an inner edge of the main body skin portion and an outer edge of the air bag cover skin portion.

Claim 97. A method as defined in claim 95 wherein the step of forming the bond includes the step of employing a thermoset plastic as the bonding material.

Claim 98. A method as defined in claim 97 wherein the step of employing a thermoset plastic as the bonding material includes the step of employing a thermoset

urethane as the bonding material.

Claim 99. A method as defined in claim 95 wherein the step of forming the bond includes the step of employing a thermoplastic as the bonding material.

Claim 100. A method as defined in claim 95 wherein the step of forming a bond includes the step of melt fusing a plastic bonding material to an inner edge of the main body skin portion and an outer edge of the air bag cover skin portion.

Claim 101. A method as define in claim 95 wherein the step of forming a bond includes the step of melt fusing an overlap between the main body skin portion and the air bag cover skin portion.

Claim 102. A method as defined in claim 88 further comprising the step of forming a tear seam in the air bag cover skin portion.

Claim 103. A method as defined in claim 102 wherein the tear seam is formed by scoring the backside of the air bag cover skin portion with a laser beam.

Claim 104. A method as defined in claim 102 wherein the tear seam is formed by pressing a heated impression tool into the backside of the air bag cover skin portion.

Claim 105. A method as defined in claim 102 wherein the step of forming a tear seam includes the step of forming a tear seam-defining gap in the skin and filling the gap with the third plastic material to form a tear seam strip in the skin.

Claim 106. A method as defined in claim 105 further comprising the step of painting an outer surface of the skin.